WHAT IS CLAIMED IS:

1. A thermal cycling device, comprising:

a sample block assembly;

an optical detection system positioned above the sample block assembly; and

a sample well tray holder including a tray-receiving region configured to hold a sample well tray, the sample well tray holder configured to translate the sample well tray into alignment with the sample block assembly,

wherein the sample block assembly is adapted for movement between a first position permitting the translation of the sample well tray into alignment with the sample block assembly, and a second position, upward relative to the first position, where the sample block assembly contacts the sample well tray.

2. The thermal cycling device of claim 1, wherein the optical detection system is adapted to remain substantially stationary during insertion and removal of the sample well tray from the thermal cycling device.

3. The thermal cycling device of claim 1, wherein the sample block assembly comprises a sample block for contacting the sample well tray when the sample block assembly is in the second position.

4. The thermal cycling device of claim 3, further comprising a positioning mechanism configured to translate the sample block between the first and second positions.

5. The thermal cycling device of claim 4, wherein the positioning mechanism comprises a plurality of links.

6. The thermal cycling device of claim 5, wherein the positioning mechanism is configured so that movement of one of the plurality of links causes movement of another of the plurality of links, thereby causing the translation of the sample block assembly between the first and second positions.

7. The thermal cycling device of claim 5, wherein the positioning mechanism further comprises a motor, and further wherein the plurality of links comprises a first link, a second link, and a third link, and further wherein a first end of the first link is rotatably connected to the motor, a second end of the first link is rotatably connected to the first end of both the second link and the third link, the second link having a second end rotatably connected to a stationary pivot point, the third link having a second end rotatably connected to the sample block assembly, and further wherein the motor causes the first link to translate, thereby causing the second end of the third link to translate the sample block assembly between the first and second positions.

8. The thermal cycling device of claim 7, wherein the plurality of links comprises a first set of links and a second set of links, the first and second set of links being positioned on opposite sides of the sample block assembly.

9. The thermal cycling device of claim 5, wherein the plurality of links comprises a first link and a second link, the first link having a first end rotatably

connected to a stationary pivot point, the first link having a second end comprising a handle for manipulation of the first link, the second link having a first end rotatably connected to a pivot point on the first link, the second link having a second end rotatably connected to the sample block assembly, wherein the rotation of the first link about the stationary pivot point causes the second link to translate, thereby translating the sample block assembly between the first and second positions.

10. The thermal cycling device of claim 9, wherein the handle of the first link further comprises a door corresponding to an opening in the thermal cycling device, wherein the door covers the opening in the thermal cycling device when the sample block assembly is in the second position.

11. The thermal cycling device of claim 9, wherein the plurality of links comprises a first set of links and a second set of links, the first and second set of links being positioned on opposite sides of the sample block assembly.

12. The thermal cycling device of claim 5, wherein the plurality of links comprises a first link and a second link, the first link being rotatably connected to a stationary pivot point, the first link having a first end rotatably connected to the second link, the first link having a second end comprising a handle for manual manipulation of the first link, the second link having a first end rotatably connected to the first end of the first link, the second link having a second end rotatably connected to the sample block assembly, wherein the rotation of the first link about

the stationary pivot point causes the second link to translate, thereby translating the sample block assembly between the first and second positions.

13. The thermal cycling device of claim 12, wherein the plurality of links comprises a first set of links and a second set of links, the first and second set of links being positioned on opposite sides of the sample block assembly.

14. The thermal cycling device of claim 1, wherein the thermal cycling device is configured to perform thermal cycling when the sample well tray is aligned with the sample block assembly and the sample block assembly is positioned in the second position.

15. The thermal cycling device of claim 1, wherein the tray-receiving region of the sample well tray holder comprises a recess in which the sample well tray may be positioned.

16. The thermal cycling device of claim 1, wherein the thermal cycling device is a real-time PCR machine.

17. A method of performing nucleic acid amplification on a plurality of biological samples positioned in a sample well tray in a thermal cycling device, comprising the steps of:

placing the sample well tray onto a tray-receiving region of a sample well tray holder;

translating the sample well tray holder and sample well tray into the thermal cycling device until the sample well tray is aligned with a sample block assembly positioned beneath the sample well tray;

translating the sample block assembly from a first position wherein the sample block assembly permits the sample well tray to translate into alignment with the sample block assembly, to a second position wherein the sample block assembly is positioned vertically upward relative to the first position to contact the sample well tray;

thermally cycling the device while simultaneously optically detecting the samples;

translating the sample block assembly from the second position to the first position; and

removing the sample well tray from the thermal cycling device,

wherein the optical detection system remains substantially stationary throughout the above steps.

18. The method of performing nucleic acid amplification of claim 17, wherein the steps of translating the sample block assembly include the step of imparting a force on a first link in order to create movement of the first link.

19. The method of performing nucleic acid amplification of claim 18, wherein the movement of the first link imparts a force on a second link to create movement of the second link and the sample block assembly.

20. A thermal cycling device, comprising:

an optical detection system;

a sample block adapted for movement along a first path, toward and away from the optical detection system; and

a sample well tray holder including a tray-receiving region, the sample well tray holder being adapted for movement along a second path, toward and away from a position whereat the tray-receiving region is disposed between the optical detection system and the sample block,

wherein the optical detection system is adapted to remain substantially stationary during movement of the sample block and the sample well tray holder along the first and second paths.

21. The thermal cycling device of claim 20, wherein the sample block is configured to allow the sample well tray holder to move along the second path when the sample block is in a first position away from the optical detection system.

22. The thermal cycling device of claim 21, wherein the sample block is configured to contact a sample well tray received in the tray-receiving region of the sample well tray holder when the tray-receiving region is disposed between the optical detection system and the sample block, and the sample block is in a second position toward the optical detection system.

23. The thermal cycling device of claim 22, further comprising a positioning mechanism configured to translate the sample block between the first and second positions.

24. The thermal cycling device of claim 23, wherein the positioning mechanism comprises a plurality of links.

25. The thermal cycling device of claim 24, wherein the positioning mechanism is configured so that movement of one of the plurality of links causes movement of another of the plurality of links, thereby causing the translation of the sample block between the first and second positions.

26. The thermal cycling device of claim 24, wherein the positioning mechanism further comprises a motor, and further wherein the plurality of links comprises a first link, a second link, and a third link, and further wherein a first end of the first link is rotatably connected to the motor, a second end of the first link is rotatably connected to the first end of both the second link and the third link, the second link having a second end rotatably connected to a stationary pivot point, the third link having a second end rotatably connected to the sample block, and further wherein the motor causes the first link to translate, thereby causing the second end of the third link to translate the sample block between the first and second positions.

27. The thermal cycling device of claim 26, wherein the plurality of links comprises a first set of links and a second set of links, the first and second set of links being positioned on opposite sides of the sample block.

28. The thermal cycling device of claim 24, wherein the plurality of links comprises a first link and a second link, the first link having a first end rotatably

connected to a stationary pivot point, the first link having a second end comprising a handle for manipulation of the first link, the second link having a first end rotatably connected to a pivot point on the first link, the second link having a second end rotatably connected to the sample block, wherein the rotation of the first link about the stationary pivot point causes the second link to translate, thereby translating the sample block between the first and second positions.

29. The thermal cycling device of claim 28, wherein the handle of the first link further comprises a door corresponding to an opening in the thermal cycling device, wherein the door covers the opening in the thermal cycling device when the sample block is in the second position.

30. The thermal cycling device of claim 28, wherein the plurality of links comprises a first set of links and a second set of links, the first and second set of links being positioned on opposite sides of the sample block.

31. The thermal cycling device of claim 24, wherein the plurality of links comprises a first link and a second link, the first link being rotatably connected to a stationary pivot point, the first link having a first end rotatably connected to the second link, the first link having a second end comprising a handle for manual manipulation of the first link, the second link having a first end rotatably connected to the first end of the first link, the second link having a second end rotatably connected to the sample block, wherein the rotation of the first link about the stationary pivot point causes the second link to translate, thereby translating the sample block between the first and second positions.

32. The thermal cycling device of claim 31, wherein the plurality of links comprises a first set of links and a second set of links, the first and second set of links being positioned on opposite sides of the sample block.

33. The thermal cycling device of claim 20, wherein the thermal cycling device is configured to perform thermal cycling when the tray-receiving region of the sample well tray holder is disposed between the optical detection system and the sample block, and the sample block is in a position toward the optical detection system.

34. The thermal cycling device of claim 20, wherein the tray-receiving region of the sample well tray holder comprises a recess in which a sample well tray may be positioned.

35. The thermal cycling device of claim 20, wherein the thermal cycling device is a real-time PCR machine.